~~CLAIMS~~

1.A software management system of an intelligent power conditioner with backup system option employing trend analysis for early prediction of AC power line failure, utilizing a microprocessor based control system for providing suitable alarms when an operating input AC line is imminently defective and for initiating an inverter control signal when an inverter module is attached as an option, whereby said control system analyzes the input and output voltages, provides analysis of input voltage surges and sags, measures transient amplitude and transient pulse width, counts glitches, and discontinuities or dropouts , measures frequency, and identifies each defect and computes associated trends, stores all accumulated data in a Log Buffer for digital printout and video display, and then provides appropriate alarms to the user advising of imminent power failure and the need for said inverter module, if said inverter module , which can be attached by simple plug in, has not been attached thereto.

2. The power conditioner of claim 1 whereby a measured defect actuates a visual alarm.

3. The power conditioner of claim 1 whereby a measured defect actuates an audible alarm.

14. The power conditioner of claim 1 whereby accumulated data is stored in a Log Buffer, for printout or visual display by the user.

15. The power conditioner of claim 1 whereby the trend analysis is used to determine incipient power line failure, and thus alert the user that an inverter module is required.

16. The power conditioner of claim 1 whereby the trend analysis system keeps track of battery operation and is used to manage battery recharging for optimum battery life.

17. The power conditioner of claim 13 whereby the audible alarm is a beeper.

18. The power conditioner of claim 13 whereby the audible alarm is a human voice speaking an appropriate message which identifies the determined problem.

19. The power conditioner of claim 15 whereby the inverter module is designed as a plug-in unit, install able by the user.